

REMARKS

Applicants appreciate the Examiner's thorough review of the present application, and respectfully request reconsideration in light of the preceding amendments and the following remarks.

Claims 6-28 are pending in the application. Claims 1-5 have been cancelled. Claims 6-10 remain unchanged notwithstanding the Examiner's art rejections. Claims 11-28 have been added to provide Applicants with the scope of protection to which they are believed entitled. The new claims find solid support in the original specification and drawings, e.g., FIGs. 1-2, the paragraph bridging pages 4-5 and the last paragraph on page 7. No new matter has been introduced through the foregoing amendments.

The rejections of claims 1-5 are moot as these claims have been cancelled.

The 35 U.S.C. 102(b) rejection of independent claim 6 is traversed because the applied reference, i.e., *Wright* (U.S. Patent No. 5,017,876), fails to teach or disclose each and every element of the rejected claims, i.e., the claimed step of sensing the **voltage** of the high voltage circuits. The *Wright* reference relates to *current* measurement as extensively discussed in the Abstract, column 2, lines 20-27, and the claims, e.g., the last paragraph of claim 1 of *Wright*. It should be noted that the current measured in the *Wright* device (FIG.7) does not represent the voltage in the high voltage circuit of the ionizer (e.g., at 10 in FIG. 2).

Accordingly, the 35 U.S.C. 102(b) rejection of claim 6 as well as claims 7-8 depending therefrom is erroneous and should be withdrawn. The 35 U.S.C. 103(a) rejection of claims 9-10 should also be withdrawn for at least the same reason.

New independent claim 11 is patentable over the applied art of record, especially *Wright*, because the art fails to disclose, teach or suggest that the sensing circuit is capacitively coupled to the high voltage circuit **at a location outside the vicinity of the emitter end** where gas molecules are ionized. This feature is supported at least by elements 8 and 18 in FIG. 1. The capacitive

coupling of the present invention can be located in the presently claimed manner because the sensing circuit is arranged to measure voltage. In contrast, the *Wright* rings 16/18 must be located in the vicinity of the emitter end, or the corona region, because the rings are arranged to measure currents formed by charges generated in the vicinity of the emitter end. The *Wright* rings cannot be properly modified to be placed outside the corona region as the primary intended purpose of the rings would be defeated.

Claims 12-17 depend from claim 11, and are considered patentable at least for the reason advanced with respect to claim 11. Claims 12-17 are also patentable on their own merits since these claims recite other features of the invention neither disclosed, taught nor suggested by the applied art.

As to claim 12, the art, especially *Wright*, fails to disclose, teach or suggest that the sensing circuit comprises a capacitive coupling to the electrical connection **between the electrode emitter and the high voltage source**.

As to claims 13-16, the art, especially *Wright*, fails to disclose, teach or suggest the claimed **reference sensing circuit** capacitively coupled to the reference circuit for additionally detecting faults in the reference circuit. In contrast, note element 12 of *Wright*.

New independent claim 18 is patentable over the applied art of record, especially *Wright*, because the art fails to disclose, teach or suggest that the sensing circuit is capacitively coupled to at least one high voltage circuit **without creating a current path for charges generated by the ionizer**. This feature is supported at least by the specification, the paragraph bridging pages 4-5. In contrast, the *Wright* device creates an additional current path for charges generated by the ionizer to flow. See, e.g., column 6, lines 50-54. The *Wright* device cannot be properly modified to include the presently claimed feature because the primary intended purpose of the *Wright* rings would be defeated.

Claims 19-23 depend from claim 18, and are considered patentable at least for the reason advanced with respect to claim 18. Claims 19-23 are also patentable on their own merits since

these claims recite other features of the invention neither disclosed, taught nor suggested by the applied art.

As to claims 19-20 and 22-23, the art, especially *Wright*, fails to disclose, teach or suggest the claimed **ion balance sensor** that has a capacitive coupling to the reference circuit.

Claims 24-26 depend from claim 6, and are considered patentable at least for the reason advanced with respect to claim 6. Claims 24-26 are also patentable on their own merits since these claims recite other features of the invention neither disclosed, taught nor suggested by the applied art.

As to claim 24, the art, especially *Wright*, fails to disclose, teach or suggest that the step of capacitively coupling is performed **without creating a current path for charges generated by the ionizer**.

As to claim 25, the art, especially *Wright*, fails to disclose, teach or suggest that the threshold voltage is **preset**. Note, both currents input to element 20 in FIG. 2 of *Wright* are not preset.

As to claim 26, the art, especially *Wright*, fails to disclose, teach or suggest that **both** the emitter and reference voltages are detected.

Independent claim 27 is patentable over the applied art of record, especially *Wright*, because the art fails to disclose, teach or suggest the claimed **coupling means** for capacitively coupling the sensing means to the high voltage circuit without creating a current path for charges generated by the ionizer.

Claim 28 depends from claim 27, and is considered patentable at least for the reason advanced with respect to claim 27. Claim 28 is also patentable on its own merits since the applied art fails to disclose, teach or suggest **two separate sensing means** for detecting the emitter and reference voltages, and **two separate comparing means** for comparing the detected emitter and reference voltages to first and second threshold, respectively.

Serial No. 09/868,842

Each of the Examiner's rejections has been traversed. Accordingly, Applicants respectfully submit that all claims are now in condition for allowance. Early and favorable indication of allowance is courteously solicited.

The Examiner is invited to telephone the undersigned, Applicant's attorney of record, to facilitate advancement of the present application.

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